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Stratford paper, and limited to 394 copies of which 210 were taken in advance of publication. It is a beautiful example of the bookmaker's art. Ginn and Company deserve heartiest congratulations.

R. C. ARCHIBALD.

Primitive Groups. By W. A. MANNING. Part I. (*Stanford University Publications, University series, Mathematics and Astronomy, volume 1, no. 1.*) Stanford University, California, 1921. Royal 8vo. 108 pages. Paper. Price \$1.25.

Preface: "Some knowledge of Algebraic Numbers and of the ordinary Theory of Numbers is assumed to have been acquired by the reader by way of preparation for a serious study of the subject of which this volume treats.

"An apology may be in order for the arrangement of the subject matter. It was arranged as it is to meet the needs of actual instruction. The use of 'group characteristics,' as developed by Frobenius, should be a familiar tool in the hands of the student as early as possible. Therefore linear substitutions are taken up in the third chapter. From the point of view of strict logic this study of linear substitutions and of linear groups should be quite fully developed before those very special substitutions which we call permutations are considered. But the idea of groups of non-commutative operations can, in the author's opinion, be best gained from a few lessons on the concrete and familiar permutations of a finite number of letters. Therefore the first two chapters are intended to familiarize the learner with the simpler processes used in Group Theory, to exhibit the fundamental theorems which admit of briefly worded proof, and to prepare the way for the more difficult developments of linear groups. Moreover, since any 'abstract' group of finite order is isomorphic to some group of permutations, it would seem that sufficient generality can be attained if the phraseology of the abstract theory is ignored, as is done in this book.

"In talking of prime numbers it is admitted that it is a matter of indifference whether unity is included among the primes or not. May one be permitted the same license, if for the sake of convenience in stating certain theorems, the identical substitution alone is denied the dignity of being called a group (§ 4)? The new terms 'similar groups' (§ 16), 'open product' (§ 21) and 'uniprimitive group' (§ 37) seem useful and necessary.

"In justification of the publication of these pages in our University series, it may be stated that some of the material to be found in the volume is new. In particular, theorems II of § 37, I of § 38, and I of § 45 have not been published elsewhere.

"Among the sources from which the author has drawn inspiration and material the following treatises should be mentioned: Jordan, *Traité des Substitutions*; Weber, *Lehrbuch der Algebra*; Burnside, *Theory of Groups*; Dickson, *Linear Groups*; Miller, Blichfeldt and Dickson, *Finite Groups*; Blichfeldt, *Finite Collineation Groups*; Hilton, *Linear Substitutions*.

"But the memoirs of Jordan and of Frobenius have contributed more by way of suggestion and encouragement than any books."

Contents—Chapter I: The elementary theory of groups of permutations, 7-27; II: Transitive groups, 28-44; III: Group characteristics, 45-69; IV: Applications of group characteristics, 70-80; V: Transitive groups, 81-91; VI: Primitive groups with transitive subgroups of lower degree, 92-108.

Computing Jetons. By D. E. SMITH. (*Numismatic Notes and Monographs, no. 9.*) New York, The American Numismatic Society, 1921. 16mo. 2 + 70 pp. + 5 plates. Paper cover, price \$1.50.

This monograph, embellished with 20 pages of illustrations in addition to the plates, is based upon an address delivered by the author before the American Numismatic Society, in New York City, on February 7, 1921. Introductory paragraphs: "In accepting the invitation . . . to speak upon the subject of Computing Jetons, I have naturally considered the possibility of offering something that might appeal to its members as not already familiar. Few works upon any subject relating to numismatics are so exhaustive in their special fields as the monumental and scholarly treatise of Professor Francis Pierrepont Barnard (*Casting-Counter and Counting-Board*, Oxford, 1916), and hence it may seem quite superfluous, and indeed presumptuous, to attempt to supplement such a storehouse of information.